

## STRUCTURE SEARCH

=> d his 132

(FILE 'HCAPLUS' ENTERED AT 09:36:31 ON 20 NOV 2007)  
L32 17 S L31 AND L29

=> d que stat 132  
L2 5 SEA FILE=REGISTRY ABB=ON PLU=ON (298695-60-0/BI OR  
3047-32-3/BI OR 3897-65-2/BI OR 5945-33-5/BI OR  
9003-56-9/BI)  
I5 STR .



## NODE ATTRIBUTES:

DEFAULT MILEVEL IS ATOM

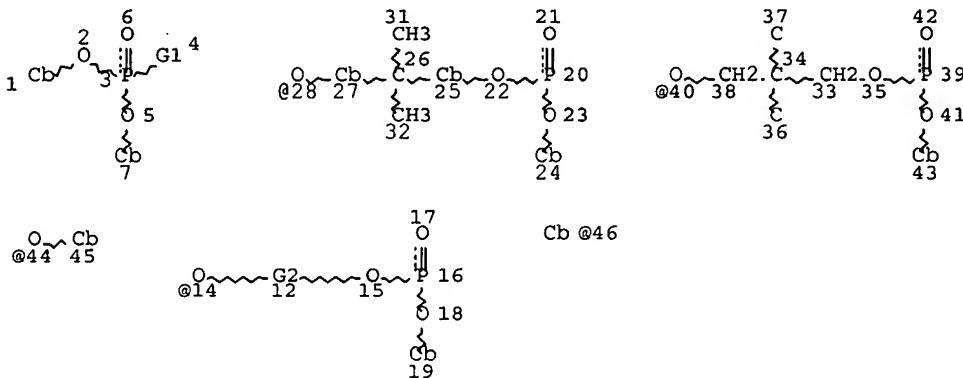
DEFAULT EC-LEVEL IS LIMITED

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE

L10 17331 SEA FILE=REGISTRY ABB=ON PLU=ON OC3/ES  
L13 STR



VAR G1=14/28/40/44

VAR G2=46/AK

## NODE ATTRIBUTES:

NSPEC	IS	RC	AT	36
NSPEC	IS	RC	AT	37
CONNECT	IS	E1	RC AT	6
CONNECT	IS	E1	RC AT	17
CONNECT	IS	E1	RC AT	21
CONNECT	IS	E1	RC AT	42
DEFAULT	MLEVEL	IS	ATOM	
GGCAT	IS	UNS	AT	1
GGCAT	IS	UNS	AT	7
GGCAT	IS	UNS	AT	19
GGCAT	IS	UNS	AT	24
GGCAT	IS	UNS	AT	25
GGCAT	IS	UNS	AT	27
GGCAT	IS	UNS	AT	43

10/518878

LOW ACIDITY PHOSPHATE ESTERS

This application is a 371 of PCT/US03/20013 filed on 06/24/2003.

Aromatic oligomeric phosphates, which are used as

flame-retardants for thermoplastic resins, are made by reaction of POCl<sub>3</sub> with a biphenol followed by reaction with phenol (or by the reaction of diphenyl chlorophosphate with a biphenol) in the presence of a Lewis acid catalyst to thereby produce a crude phosphate product. Usually, extensive washing of such a product is needed to remove the catalyst and other acidic impurities that may negatively impact the properties of polymers (i.e., polycarbonates, polyesters, etc.) in which the phosphate ester is placed. Alternatively, the use of epoxides after removal of the catalyst to decrease acidity has been described in U.S Patent No. 5,616,768 and in PCT International Patent Application No. PCT/US02/03522, filed Feb. 8, 2002.

It has been found that oxetanes are effective in decreasing the acidity of such phosphate esters. Moreover, it has also been found that an oxetane-treated phosphate ester showed superior hydrolytic stability when compounded with a polycarbonate/ ABS resin. While U.S. Patent No. 4,102,859 teaches the combination of neutral esters of phosphorous acid (i.e., phosphites) and oxetane compounds in plastics, particularly polycarbonate, it does not suggest the combination of phosphate esters and oxetane compounds.

The phosphate ester can be represented by the formula:

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